UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,975	04/02/2007	Hitoshi Fujii	Q95572	3590

23373 7590 06/24/2010

SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER	
RUSH, ERIC	

ART UNIT	PAPER NUMBER
2624	

NOTIFICATION DATE	DELIVERY MODE
06/24/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

sughrue@sughrue.com
PPROCESSING@SUGHRUE.COM
USPTO@SUGHRUE.COM

Office Action Summary	Application No.	Applicant(s)	
	10/596,975	FUJII ET AL.	
	Examiner	Art Unit	
	ERIC RUSH	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 June 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *5-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *5-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 June 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *6/30/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 5 and 6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

3. Claim 5 recites the limitation "the numerical value" in line 7. There is insufficient antecedent basis for this limitation in the claim.

4. Claim 6 recites the limitation "the numerical value" in 7. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 5 – 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Endoh et al. U.S. Patent No. 7,359,531 in view of Forrester et al. U.S. Patent No. 6,944,494 and further in view of Fujii U.S. Patent No. 4,862,894.

- With regards to claim 5, Endoh et al. teach a personal identification method through the measurement of subcutaneous bloodstream (Endoh et al., Abstract, Column 7 Lines 36 - 52) comprising: (1) a step of expanding and irradiating a laser beam to a finger pad and focusing light reflected from a blood vessel layer under skin onto an image sensor plane; (Endoh et al., Abstract, Column 7 Line 55 – Column 8 Line 14, Column 9 Lines 4 - 12) and (3) a step of comparing a fingerprint pattern appearing as the bloodstream map with pre-registered personal data for identification. (Endoh et al., Column 8 Lines 6 – 14, Column 11 Line 62 – Column 12 Line 18 [Endoh et al. do not disclose the rate of time variation of the received light amount at each pixel for comparing, but disclose the means for making such a comparison and it is noted that Forrester et al. is relied upon to teach the rate of time variation of the received light amount at each pixel.]) Endoh et al. fail to explicitly teach a step of expanding and irradiating a laser beam to a finger pad as laser speckles by using an optical system; and a step of determining an amount representing the rate

of time variation of the amount of received light at each pixel point in the laser speckles and setting the numerical value thus achieve as a two-dimensional map to thereby achieve a bloodstream map of the finger pad. Pertaining to analogous art, Forrester et al. teach irradiating a laser beam to a finger pad as laser speckles by using an optical system; (Forrester et al., Column 6 Lines 14 – 15 and Lines 32 - 40) and a step of determining an amount representing the rate of time variation of the amount of received light at each pixel point in the laser speckles and setting the numerical value thus achieve as a two-dimensional map to thereby achieve a bloodstream map of the finger pad. (Forrester et al., Column 6 Lines 31 – 50, Column 7 Lines 50 – 62, Column 8 Lines 41 -67, Column 10 Lines 26 – 44, Column 11 Lines 35 – 42, Column 12 Lines 20 - 34) Forrester et al. fail to explicitly teach a step of expanding and irradiating a laser beam to a finger pad as laser speckles by using an optical system. Pertaining to analogous art, Fujii teaches a step of expanding and irradiating a laser beam to a target as laser speckles by using an optical system. (Fujii, Abstract, Column 2 Lines 19 – 37, Column 4 Lines 14 – 28 and Lines 40 - 48) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Endoh et al. with the teachings of Forrester et al. This modification would have been prompted in order to improve the base device of Endoh et al. with the known technique of Forrester et al. The known technique of calculating a

time variation of average bloodstream in an area disclosed by Forrester et al. would enhance the base device of Endoh et al. in known ways. The application of the technique of Forrester et al. to Endoh et al. would reduce the variations due to the speckle caused by the movement of blood and produce more consistent images for the authentication apparatus of Endoh et al. This combination could be completed according to well known techniques in the art and would likely yield predictable results, in that the time variation of average bloodstream image of Forrester et al. would replace the bloodstream image of Endoh et al. for authentication purposes. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of Endoh et al. in view of Forrester et al. with the teachings of Fujii. This modification could be completed by a simple substitution of the irradiating means of Endoh et al. and/or Forrester et al. for the irradiating means of Fujii. This modification could be completed according to known techniques and would likely yield predictable results, in that a expanded laser beam would image the bloodstream for obtaining the images of Endoh et al. in view of Forrester et al.

- With regards to claim 6, Endoh et al. teach a personal identification method through the measurement of subcutaneous bloodstream (Endoh et al., Abstract, Column 7 Lines 36 - 52) comprising: (1) a step of

irradiating a finger pad and focusing light reflected from a blood vessel layer under skin onto an image sensor plane; (Endoh et al., Abstract, Column 7 Line 55 – Column 8 Line 14, Column 9 Lines 4 - 12) (3) a step of comparing a fingerprint pattern appearing as the bloodstream map with pre-registered personal data for identification; (Endoh et al., Column 8 Lines 6 – 14, Column 11 Line 62 – Column 12 Line 18) and comparing the time variation with a predetermined reference for identification. (Endoh et al., Column 8 Lines 6 – 14, Column 11 Line 62 – Column 12 Line 18 [Endoh et al. do not disclose a time variation average bloodstream for comparing, but disclose the means for making such a comparison and it is noted that Forrester et al. is relied upon to teach the time variation of average bloodstream.]) Endoh et al. fail to teach a step of expanding and irradiating a laser beam to a finger pad as laser speckles by using an optical system; a step of determining an amount representing the rate of time variation of the amount of received light at each pixel point in the laser speckles and setting the numerical value concerned as a two-dimensional map to achieve a bloodstream map of the finger pad; and a step of determining a time variation of average bloodstream in the whole area or some area. Pertaining to analogous art, Forrester et al. teach irradiating a laser beam to a finger pad as laser speckles by using an optical system; (Forrester et al., Column 6 Lines 14 – 15 and Lines 32 - 40) a step of determining an amount representing the rate of time variation

of the amount of received light at each pixel point in the laser speckles and setting the numerical value concerned as a two-dimensional map to achieve a bloodstream map of the finger pad; (Forrester et al., Column 6 Lines 31 – 50, Column 7 Lines 50 – 62, Column 8 Lines 41 -67, Column 10 Lines 26 – 44, Column 11 Lines 35 – 42, Column 12 Lines 20 - 34) and a step of determining a time variation of average bloodstream in the whole area or some area. (Forrester et al., Column 6 Lines 31 – 50, Column 7 Lines 50 – 62, Column 8 Lines 41 -67, Column 10 Lines 26 – 44, Column 11 Lines 35 – 42, Column 12 Lines 20 - 34) Forrester et al. fail to explicitly teach a step of expanding and irradiating a laser beam to a finger pad as laser speckles by using an optical system. Pertaining to analogous art, Fujii teaches a step of expanding and irradiating a laser beam to a target as laser speckles by using an optical system. (Fujii, Abstract, Column 2 Lines 19 – 37, Column 4 Lines 14 – 28 and Lines 40 - 48) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Endoh et al. with the teachings of Forrester et al. This modification would have been prompted in order to improve the base device of Endoh et al. with the known technique of Forrester et al. The known technique of calculating a time variation of average bloodstream in an area disclosed by Forrester et al. would enhance the base device of Endoh et al. in known ways. The application of the technique of Forrester et al. to Endoh et al. would reduce the variations

due to the speckle caused by the movement of blood and produce more consistent images for the authentication apparatus of Endoh et al. This combination could be completed according to well known techniques in the art and would likely yield predictable results, in that the time variation of average bloodstream image of Forrester et al. would replace the bloodstream image of Endoh et al. for authentication purposes. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of Endoh et al. in view of Forrester et al. with the teachings of Fujii. This modification could be completed by a simple substitution of the irradiating means of Endoh et al. and/or Forrester et al. for the irradiating means of Fujii. This modification could be completed according to known techniques and would likely yield predictable results, in that a expanded laser beam would image the bloodstream for obtaining the images of Endoh et al. in view of Forrester et al.

- With regards to claim 7, Endoh et al. teach a personal identification device (Endoh et al., Abstract, Column 7 Lines 36 - 52) comprising: irradiating means for irradiating the beam to a finger pad; (Endoh et al., Abstract, Column 7 Line 55 – Column 8 Line 14, Column 9 Lines 4 - 12) light receiving means that has many pixels and receives light reflected from a subcutaneous blood vessel layer of the finger pad; (Endoh et al., Column

7 Line 55 – Column 8 Line 14, Column 9 Lines 18 - 32) storage means for storing the output of each pixel achieved by the light receiving means; (Endoh et al., Column 7 Line 55 – Column 8 Line 14, Column 9 Lines 18 – 32, Column 12 Lines 28 - 30) second storage means for storing a two-dimensional distribution of a fingerprint pattern; (Endoh et al., Column 8 Lines 6 – 14, Column 11 Lines 4 – 19, Column 11 Line 62 – Column 12 Line 3) and means for comparing the fingerprint pattern stored in the second storage means with pre-registered personal data for identification. (Endoh et al., Column 8 Lines 6 – 14, Column 11 Line 62 – Column 12 Line 18 [Endoh et al. do not disclose the rate of time variation of the received light amount at each pixel for comparing, but disclose the means for making such a comparison and it is noted that Forrester et al. is relied upon to teach the rate of time variation of the received light amount at each pixel.]) Endoh et al. fail to explicitly teach irradiating means for expanding a laser beam and irradiating the expanded laser beam to a finger pad; calculation means for calculating an amount representing the rate of time variation of the received light amount at each pixel from the storage content of the storage means; and second storage means for storing a two-dimensional distribution of the calculation result achieved at each pixel as a fingerprint pattern. Pertaining to analogous art, Forrester et al. teach irradiating means comprising a laser beam; (Forrester et al., Column 6 Lines 14 – 15 and Lines 32 - 40) calculation means for

calculating an amount representing the rate of time variation of the received light amount at each pixel from the storage content of the storage means; (Forrester et al., Column 6 Lines 31 – 50, Column 7 Lines 50 – 62, Column 8 Lines 41 -67, Column 10 Lines 26 – 44, Column 11 Lines 35 – 42, Column 12 Lines 20 - 34) and second storage means for storing a two-dimensional distribution of the calculation result achieved at each pixel as a fingerprint pattern. (Forrester et al., Column 6 Lines 31 – 50, Column 7 Lines 50 – 62, Column 8 Lines 41 -67) Forrester et al. fail to explicitly teach irradiating means for expanding a laser beam and irradiating the expanded laser beam to a finger pad. Pertaining to analogous art, Fujii teaches irradiating means for expanding a laser beam and irradiating the expanded laser beam to target. (Fujii, Abstract, Column 2 Lines 19 – 37, Column 4 Lines 14 – 28 and Lines 40 - 48) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Endoh et al. with the teachings of Forrester et al. This modification would have been prompted in order to improve the base device of Endoh et al. with the known technique of Forrester et al. The known technique of calculating a time variation of average bloodstream in an area disclosed by Forrester et al. would enhance the base device of Endoh et al. in known ways. The application of the technique of Forrester et al. to Endoh et al. would reduce the variations due to the speckle caused by the movement of blood and produce more consistent images

for the authentication apparatus of Endoh et al. This combination could be completed according to well known techniques in the art and would likely yield predictable results, in that the time variation of average bloodstream image of Forrester et al. would replace the bloodstream image of Endoh et al. for authentication purposes. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of Endoh et al. in view of Forrester et al. with the teachings of Fujii. This modification could be completed by a simple substitution of the irradiating means of Endoh et al. and/or Forrester et al. for the irradiating means of Fujii. This modification could be completed according to known techniques and would likely yield predictable results, in that a expanded laser beam would image the bloodstream for obtaining the images of Endoh et al. in view of Forrester et al.

- With regards to claim 8, Endoh et al. teach a personal identification device (Endoh et al., Abstract, Column 7 Lines 36 - 52) comprising: irradiating means for irradiating the beam to a finger pad; (Endoh et al., Abstract, Column 7 Line 55 – Column 8 Line 14, Column 9 Lines 4 - 12) light receiving means that has many pixels and receives light reflected from a subcutaneous blood vessel layer of the finger pad; (Endoh et al., Column 7 Line 55 – Column 8 Line 14, Column 9 Lines 18 - 32) storage means for storing the output of each pixel achieved by the light receiving means;

(Endoh et al., Column 7 Line 55 – Column 8 Line 14, Column 9 Lines 18 – 32, Column 12 Lines 28 - 30) second storage means for storing a two-dimensional distribution of a fingerprint pattern; (Endoh et al., Column 8 Lines 6 – 14, Column 11 Lines 4 – 19, Column 11 Line 62 – Column 12 Line 3) means for comparing the fingerprint pattern stored in the second storage means with pre-registered personal data for identification; (Endoh et al., Column 8 Lines 6 – 14, Column 11 Line 62 – Column 12 Line 18) and means for comparing the time variation concerned with a predetermined reference for identification. (Endoh et al., Column 8 Lines 6 – 14, Column 11 Line 62 – Column 12 Line 18 [Endoh et al. do not disclose a time variation average bloodstream for comparing, but disclose the means for making such a comparison and it is noted that Forrester et al. is relied upon to teach the time variation of average bloodstream.]) Endoh et al. fail to teach irradiating means for expanding a laser beam and irradiating the expanded laser beam to a finger pad; calculation means for calculating an amount representing the rate of time variation of the received light amount at each pixel from the storage content of the storage means; second storage means for storing a two-dimensional distribution of the calculation result achieved at each pixel as a fingerprint pattern; and means for calculating time variation of average bloodstream in the whole area or some area and comparing the time variation concerned with a predetermined reference for identification. Pertaining to

analogous art, Forrester et al. teach irradiating means comprising a laser beam; (Forrester et al., Column 6 Lines 14 – 15 and Lines 32 - 40) calculation means for calculating an amount representing the rate of time variation of the received light amount at each pixel from the storage content of the storage means; (Forrester et al., Column 6 Lines 31 – 50, Column 7 Lines 50 – 62, Column 8 Lines 41 -67, Column 10 Lines 26 – 44, Column 11 Lines 35 – 42, Column 12 Lines 20 - 34) second storage means for storing a two-dimensional distribution of the calculation result achieved at each pixel as a fingerprint pattern; (Forrester et al., Column 6 Lines 31 – 50, Column 7 Lines 50 – 62, Column 8 Lines 41 -67) and means for calculating time variation of average bloodstream in the whole area or some area. (Forrester et al., Column 6 Lines 31 – 50, Column 7 Lines 50 – 62, Column 8 Lines 41 -67, Column 10 Lines 26 – 44, Column 11 Lines 35 – 42, Column 12 Lines 20 - 34) Forrester et al. fail to explicitly teach irradiating means for expanding a laser beam and irradiating the expanded laser beam to a finger pad. Pertaining to analogous art, Fujii teaches irradiating means for expanding a laser beam and irradiating the expanded laser beam to target. (Fujii, Abstract, Column 2 Lines 19 – 37, Column 4 Lines 14 – 28 and Lines 40 - 48) It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the teachings of Endoh et al. with the teachings of Forrester et al. This modification would have been prompted in order to improve the base

device of Endoh et al. with the known technique of Forrester et al. The known technique of calculating a time variation of average bloodstream in an area disclosed by Forrester et al. would enhance the base device of Endoh et al. in known ways. The application of the technique of Forrester et al. to Endoh et al. would reduce the variations due to the speckle caused by the movement of blood and produce more consistent images for the authentication apparatus of Endoh et al. This combination could be completed according to well known techniques in the art and would likely yield predictable results, in that the time variation of average bloodstream image of Forrester et al. would replace the bloodstream image of Endoh et al. for authentication purposes. Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the combined teachings of Endoh et al. in view of Forrester et al. with the teachings of Fujii. This modification could be completed by a simple substitution of the irradiating means of Endoh et al. and/or Forrester et al. for the irradiating means of Fujii. This modification could be completed according to known techniques and would likely yield predictable results, in that a expanded laser beam would image the bloodstream for obtaining the images of Endoh et al. in view of Forrester et al.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- J. David Briers, Glenn Richards and Xiao Wei He, "Capillary Blood Flow Monitoring Using Laser Speckle Contrast Analysis", Journal of Biomedical Optics, Volume 4, Issue 1, Jan. 1999, Pages 164 - 175; which is directed to blood flow monitoring with the use of laser speckle contrast analysis.
- Fujii et al. U.S. Patent No. 5,240,006; which is directed to an apparatus for imaging and displaying a bloodstream with use of a laser beam.
- Choi U.S. Patent No. 6,301,375; which is directed to an apparatus and method for individual recognition based on subcutaneous vein patterns.
- Nagasaka et al. U.S. Patent No. 7,245,745; which is direction to an authentication device using finger blood vessel patterns.
- Clayden U.S. Patent No. 5,787,185; which is directed to biometric identification of individuals by subcutaneous vein patterns.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIC RUSH whose telephone number is (571)270-3017. The examiner can normally be reached on 7:30AM - 5:00PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella can be reached on (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Matthew C Bella/
Supervisory Patent Examiner, Art Unit 2624

/E. R./
Examiner, Art Unit 2624